



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,792	11.06/2000	Toshiaki Kashihara	Q61526	6031

7590 06.03.2003

Sughrue Mion Zinn MacPeak & Seas
2100 Pennsylvania Ave NW
Washington, DC 20037

EXAMINER

TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/705,792

Applicant(s)

KASHIHARA ET AL.

Examiner

Tamai IE Karl

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, and 15-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cheetham et al. (Cheetham)(US 3,538,362). Cheetham discloses every element of the applicant's invention including the diodes 70, 72 mounted on bases 88,89 which are mounted on surfaces which are parallel to the principle surfaces of the cooling plate. The area of the bases 88, 89 are the same as the area diodes 70, 72 and the area of the AC terminal 62 is greater than the area of the diodes terminals 70a and 72a.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheetham, in further view of Einthoven (US 5,950,068). Kawano and Gautier teaches every aspect of the invention except the mesa diffusion element made using n-silicon and the dimension of

the base, cathode, and anode. Einthoven teaches a n-silicon mesa diffusion diode for a rectifier. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the generator of Cheetham with the diodes of Einthoven to provide an rectifier with improved breakdown voltage.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheetham, in further view of Mori et al.(Mori) (US 5,8728,564). Cheetham teaches every aspect of the invention except the junction between the base/cooling plate larger than the junction between the base/diode. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the generator of Cheetham with the junction between the base/cooling plate larger than the junction between the base/diode, as in Mori, to provide good seating between the base and the cooling plate.

6. Claims 6, 11, 13, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheetham, in further view of Kawano (JP 5-176,539). Cheetham teaches every aspect of the invention except the AC terminal being bent, positioned outside the fan, and extends radially outward. Kawano teaches the AC output extending radially and being bent to position the terminal in the cooling path of the fan. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the generator of Cheetham with the bent terminal of Kawano to cool the terminal.

7. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheetham, in further view of Abadia et al.(Abadia)(US 5,883,450). Cheetham teaches every aspect of the invention except the bases are soldered into the cooling plates. Abadia teaches diodes being press fit, welded, or soldered to the cooling plates. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the generator of Cheetham with the bases solder to the cooling plates to provide a more secure mechanical connection, and because it choosing between know equivalents requires only routine skill in the art, as shown by Abadia soldering an press fitting are equivalent connections in the rectifier art.
8. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheetham, in further view of Deverall et al. (Deverall) (US 5,451,823). Cheetham teaches every aspect of the invention except the cooling plates extending radially inward with a large Deverall teaches(figure 10) the cooling plates extending inward with a large number of cooling holes(410,410, and 412). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the generator of Cheetham with the holes in the cooling plates because Deverall teaches aligned ventilators to cool the plates 200 and 5
9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheetham, in further view of Yoshinaga et al. (Yoshinaga) (US 5,886,403). Cheetham teaches every aspect of the invention exceptthe resin having inorganic calcined product. Yoshinaga teaches that th includes inorganic silica or alumina but not necessarily Al₂O₃ or SiO₂(calcined). It would have been obvious to a person of ordinary skill in the art at the time of the invention to

construct the generator of Cheetham with the resin having inorganic particles to provide suitable internal pressure as taught by Yoshinaga, and with the particle being Al₂O₃ or SiO₂ because they are known insulators in the rectifier art and Yoshinaga suggests the particles are alumina or silica.

Allowable Subject Matter

10. Claim 20 is allowed.

Response to Arguments

11. Applicant's arguments filed 3/10/03 have been considered but are not persuasive. The Applicant's argument the Cheetham does not disclose the diodes embedded in the resin is not persuasive. Cheetham teaches the diodes (70, 72, which include the diode terminals 70a, 72a) are embedded between the cooling fins 74, 76 and the resin 78. The rejection is proper and maintained. The Applicant's argument that the dependent claims are allowable because claim 1 is allowable is not persuasive because claim 1 is statutory barred by Cheetham.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

Application/Control Number: 09/705,792
Art Unit: 2834

Page 6

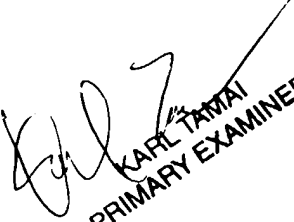
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (703) 305-7066.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nestor Ramirez, can be reached at (703) 308-1371. The facsimile number for the Group is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Karl I Tamai
PRIMARY PATENT EXAMINER
May 28, 2003


KARL TAMAI
PRIMARY EXAMINER